

Appl. No. 10/709,198  
Amdt. dated January 26, 2006  
Reply to Office action of November 07, 2005

### REMARKS

Claims 1-26 are pending in this application. Claims 24-26 are newly added without entering any new matter.

- 5 **Claim 2 is objected as being of improper dependent form for conflicting with the subject matter of claim 1**

Claim 1 recites "the voltage gain is inversely proportional to a simple exponential function..." and claim 2 recites "the denominator of the voltage gain of the amplifying stage is expressed as  $(K1 + \exp(K2 \times Vy))$ ...". Because the gain controlling voltage  $Vy$  of claim 2 can  
10 be a logarithmic function such as the function illustrated in equation (7) " $Vy = Vt \times \ln\{\exp[(V1 - V2)/Vt] - 1\}$ " of the specification of the present invention, the denominator is thereby simplified to be the simple exponential function of claim 1. Hence, claim 2 is placed in proper dependent form and reconsideration of claim 2 is respectfully requested.

- 15 **Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Sidman (U.S. Patent No. 5,247,398)**

Applicant asserts that claim 1 is not anticipated by Sidman because Sidman does not teach or suggest the limitations recited in the wherein clause "wherein the gain controlling stage comprises: a transconductance unit for generating a first current and a second  
20 current according to the first controlling voltage and the second controlling voltage; and an outputting unit for generating the gain controlling voltage according to the first current and the second current...". Therefore, reconsideration of claim 1 is respectfully requested. As claims 2-12 are dependent upon claim 1, if claim 1 is found to be allowable, so too should the dependent claims.

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**Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Yamasaki (U.S. Patent No. 5,162,678)**

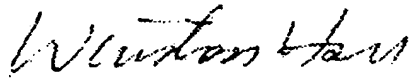
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Applicant asserts that claim 13 is not anticipated by Yamasaki because Yamasaki at least fails to teach or suggest the voltage gain increases while the gain controlling voltage decreases (Specification of the invention: Fig. 6). Yamasaki disclosed an automatic gain amplifier having a voltage gain which increases while the control voltage ( $\bar{V}_C V_C^*$ ) increases (Yamasaki: Fig. 2). Otherwise, Yamasaki fails to disclose the variable gain amplifier comprising a current mirror structure. Therefore, Yamasaki fails to teach or suggest the claimed invention and thereby reconsideration of claim 13 is respectfully requested. As claims 14-23 are dependent upon claim 13, if claim 13 is found to be allowable, so too should the dependent claims.

Besides, voltages  $V_A$  and  $V_A^*$  of Yamasaki is determined according to the input voltages  $V_I$  and  $V_I^*$  instead of the first controlling voltage  $V_C$  and the second controlling voltage  $V_C^*$ . Hence, voltage  $V_A$  or  $V_A^*$  is not the so-called gain controlling voltage of the present invention.

Consideration of pending claims 1-26 is respectfully requested.

Sincerely yours,



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